UNITED STATES DISTRICT COURT
SOUTHERN DISTRICT OF NEW YORK

ON TRACK INNOVATIONS LTD., an Israeli company	)	
	)	Case No. 1:12-cv-02224-AJN-JCF
Plaintiff and Counterclaim-Defendant,	)	ECF Case
v.	)	
T-MOBILE USA, INC., a Delaware corporation	)	
Defendant and Counterclaimant.	)	

ON TRACK INNOVATION'S OPENING BRIEF ON CLAIM CONSTRUCTION

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I. INTRODUCTION

Plaintiff and patentee On Track Innovations Ltd. ("OTI") hereby submits this memorandum of law, together with the supporting expert report of Dr. Alyssa B. Apsel ("Apsel Rpt."), and the declarations of Nehemya (Hemy) Itay ("Itay Dec.") and Guy Yonay ("Yonay Dec."), in support of its proposed construction of the claims of its U.S. Patent No. 6,045,043 (the " '043 Patent"). It is axiomatic that claims terms are to be construed according to their plain and ordinary meaning, and are not limited to embodiments described in the specification. The claims of the '043 Patent are broad, and the terms they use should be given their plain and ordinary meaning. OTI's proposed interpretations hew closely to these guidelines.

In contrast, defendant T-Mobile USA, Inc. ("T-Mobile") proposes to contort the claims into unduly restrictive interpretations by importing limitations from the specification. T-Mobile's agenda in its proposed interpretation is clear – to narrow the claims to a specific embodiment in order to then argue non-infringement of its products. T-Mobile's hyperspecific (and results-driven) interpretation is unwarranted by existing law and by the intrinsic evidence.

II. TECHNICAL BACKGROUND

Microprocessors may store secure information, such as an identification number, account number, password, encryption key, etc., intended for use in authentication or secure transactions. (Apsel Rpt. ¶13). The '043 Patent allows this data exchange via contacts and wirelessly with a single microprocessor. ('043 Patent, Abstract, Yonay Dec. Ex. 1).

Generally, in order for such microprocessors to communicate the stored secure information with other devices, a common communications protocol must be used to exchange the data. (Apsel Rpt. ¶14). At the time of the invention of the '043 Patent, there had been

established a standard for communicating secure data over contacts, but not for wirelessly transmitting data. (Apsel Rpt. ¶¶15-16).

In order to communicate wirelessly, the microprocessor (which stores the secure data) is connected to an antenna via an antenna interface. The wireless communication of the type discussed in the '043 Patent falls under the category of inductive coupling, in which the antenna is placed in sufficient proximity to an antenna of a "remote card reader" (contactless reader). ('043 Patent, Col. 1, lines 14-16; Apsel Rpt. ¶16). The radio frequency (RF) magnetic field produced by the contactless reader supports the bi-directional data communication, and is also capable of remotely powering circuitry (e.g., the antenna interface and microprocessor of the '043 Patent). ('043 Patent, Col. 5, lines 9-14; Apsel Rpt. ¶16).

The prior art to the '043 Patent was a microprocessor that could exchange data over a wired or wireless connection, but it used a switching element (a semiconductor device in addition to the microprocessor) to select whether to transmit the contact data or contactless data to the microprocessor. ('043 Patent Fig. 1; Apsel Rpt. ¶¶17-20). The microprocessor of the prior art had a single data input/output ("i/o") port used for data transfer from the contacts or antenna. (Apsel Rpt. ¶21). Since both types of data were exchanged over the same i/o port of the microprocessor, all data arriving at the microprocessor was required to comply with a single protocol. (Apsel Rpt. ¶21). Therefore, one drawback of the prior art was that data in the contactless protocol had to be converted into the contact data protocol. (Apsel Rpt. ¶21).

One of the advantages and objectives of the '043 Patent is the ability to allow a microprocessor to communicate using different contact and contactless protocols. (Apsel Rpt. ¶22). As shown in Fig. 2 of the '043 Patent, data from the contacts and from the antenna are

transmitted to the microprocessor over separate data lines (i.e., the lines labeled "CONTACT DATA" and "SERIAL 'CONTACTLESS' DATA"). ('043 Patent, Fig. 2; Apsel Rpt. ¶¶23-24).

One benefit of exchanging the two types of data over separate data lines is that no switching element is required: the contact field is fixedly – *not* selectively – connected to the microprocessor. (Apsel Rpt. ¶25). This also means no data conversion is required from a contactless communications protocol to a contact communications protocol. (Apsel Rpt. ¶25).

III. FILE HISTORY OF THE '043 PATENT

The original U.S. patent application that led to the '043 Patent was filed with claims 1-27.[1] Claim 1 of the application as originally filed stated:

> 1. A data transaction device having contact and contactless modes of operation, comprising:
>
> a semiconductor device for operating in said contact and contactless modes in accordance with a respective contact or contactless data communications protocol,
>
> a contact field including contacts fixedly connected to the semiconductor device for allowing data transmission between the contacts and the semiconductor device in accordance with said contact data communications protocol,
>
> an antenna coil for allowing contactless data transmission between the antenna coil and the semiconductor device, in accordance with said contactless data communications protocol, and
>
> an antenna interface coupled to the antenna coil, to the semiconductor device and to at least some of the contacts in the contact field and being responsive to an electromagnetic field across the coil for effecting said contactless data transmission.

[1] The patent application that resulted in the '043 Patent was filed on December 30, 1997 as U.S. Patent Application Serial No. 09/001,240, and claimed priority from a prior-filed Israel Patent Application No. 119943, which was filed by OTI on December 31, 1996.

(Yonay Dec., Ex. 2A). In a June 25, 1999 Office action, the Examiner rejected the claims over U.S. Patent No. 5,773,812 ("Kreft '812"). (Yonay Dec., Ex. 2B).

In a response to the June 25 Office action, mailed September 22, 1999, OTI amended the "contact field" element of claim 1:

> a contact field including contacts fixedly connected to the semiconductor device [for] during both said contact and contactless modes, and allowing data transmission between the contacts and the semiconductor device in accordance with said contact data communications protocol only during said contact mode,

(September 22, 1999 Response to Office action, Amendment p. 1, Yonay Dec., Ex. 2C). In conjunction with the amendment, OTI argued that the claim was patentable because the prior art included a switching device, whereas the contacts of claim 1 are fixedly connected to the semiconductor device during both contact and contactless modes of operation (September 22, 1999 Response to Office action, Remarks p. 2, Yonay Dec., Ex. 2C).

Subsequently, the Examiner allowed the claims. In the Notice of Allowance, the Examiner pointed out that the prior art did not disclose "especially the contact field which is fixedly connected to the semiconductor device during both contact and contactless modes." (October 25, 1999, Notice of Allowance, p. 2, Yonay Dec., Ex. 2D). The '043 Patent issued on April 4, 2000. ('043 Patent, Cover Page).

IV. LEGAL STANDARD

It is black-letter law that patent claims are to be interpreted by the Court as a matter of law, and not by a jury. *Markman v. Westview Instruments Inc.*, 517 U.S. 370 (1996). Indeed, as the Federal Circuit held, "[i]t has long been and continues to be a fundamental principle of American law that 'the construction of written evidence is exclusively with the court.'" *Markman v. Westview Instruments Inc.*, 52 F.3d 967, 978 (Fed. Cir. 1995) (en banc) (internal

citations omitted), *aff'd*, 517 U.S. 370 (1996). As a fully-integrated written instrument that describes the scope of an invention, the patent is "uniquely suited" for the court's expertise in determining the legal scope of its defined monopoly right. *Id.* In subsequent cases, the Federal Circuit proceeded to set forth guiding principles of claim construction, most comprehensively in *Phillips v. AWH Corp.*, 415 F.3d 1303 (Fed. Cir. 2005), which largely forms the basis for the below discussion.

It is a "bedrock principle" of patent law that "the claims of a patent define the invention to which the patentee is entitled the right to exclude." *Phillips*, at 1312. The words of a claim are generally given their ordinary and customary meaning – i.e., the meaning that the term would have to a person of ordinary skill in the art at the time of the invention. *Id.*, at 1312-1313.

First, the claims themselves provide substantial guidance to the meaning of the claim terms, including the words used and their context in the claim. *Id.*, at 1314. Other claims of the patent "both asserted and unasserted, can also be valuable sources of enlightenment as the meaning of a claim term." *Id.*

Next, the claims must be read "in view of the specification, of which they are a part." *Phillips*, at 1315, citing *Markman*, 52 F.3d at 979. The specification is "the primary basis for construing the claims." *Phillips*, at 1315, quoting *Standard Oil Co. v. Am. Cyanamid Co.*, 774 F.2d 448 (Fed. Cir. 1985). Indeed, the specification necessarily informs the proper construction of the claims. *Phillips*, at 1316, citing *Merck & Co. v. Teva Pharms. USA, Inc.*, 347 F.3d 1367 (Fed. Cir. 2003):

> A fundamental rule of claim construction is that terms in a patent document are construed with the meaning with which they are presented in the patent document. Thus claims must be construed so as to be consistent with the specification, of which they are a part.

This principle has two corollaries. First, although the specification may describe various embodiments of the invention, the Federal Circuit has repeatedly admonished courts against importing limitations from specific embodiments into the claims. *Phillips*, at 1323. Second, claims should not be interpreted in a way that would exclude disclosed embodiments, unless the inventor clearly and unambiguously disclaimed those embodiments from the scope of the invention. *Oatey Co. v. IPS Corp.*, 514 F.3d 1271 (Fed. Cir. 2008).

Third, in addition to consulting the specification, a claim term's meaning may be informed by the prosecution history, which consists of the complete record of the proceedings before the PTO and the prior art cited during examination of the patent. *Phillips*, at 1317. The prosecution history may demonstrate how the inventor and the Patent Office understood the invention. *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582-83 (Fed. Cir. 1996). However, the prosecution history is less reliable guide than the specification: since it "represents an ongoing negotiation between the PTO and the applicant… it often lacks the clarity of the specification and thus is less useful for claim construction purposes." *Phillips*, at 1317. Indeed, it is improper to limit the definition of a claim term based on an ambiguous prosecution history. *Inverness Med. Switz. GmbH v. Warner Lambert Co.*, 309 F.3d 1373, 1382 (Fed. Cir. 2002); *Elbex Video, Ltd. v. Sensormatic Electronics Corp.*, 508 F.3d 1366, 1373 (Fed. Cir. 2007) (applicant's statement made during prosecution "if taken literally would result in an inoperable system" and was therefore not considered in claim construction).

Finally, where intrinsic evidence is inconclusive, extrinsic evidence can be considered to help the court come to the proper understanding of the claims. *Texas Digital Systems, Inc. v. Telegenix, Inc.*, 308 F.3d 1193, 1212 (Fed. Cir. 2002); see also *Nazomi Commun., Inc. v. Arm Holdings, PLC*, 403 F.3d 1364, 1368 (Fed. Cir. 1999) ("consultation of extrinsic evidence is

particularly appropriate to ensure that [the court's] understanding of the technical aspects of the Patent is not entirely at variance with the understanding of one skilled in the art") (quotations omitted).

Extrinsic evidence that may be considered by the court includes expert and/or inventor testimony. *Pall Corporation v. Micron Separations*, 66 F.3d 1211, 1217 (Fed. Cir. 1995) ("Extrinsic evidence of meaning and usage in the art may be helpful in determining the criticality of the parameter, and may be received from the inventor and others skilled in the invention."); *Kadant Johnson, Inc. v. D'Amico*, 2012 U.S. Dist. LEXIS 22632 at *18 (E.D. La., Feb. 23, 2012) (court may consider extrinsic evidence, "such as technical manuals and drawings, dictionaries, expert testimony, and the testimony of the inventor, to understand the technology involved in the patent and the allegedly infringing device.") (quoting *EMI Group N. Am., Inc. v. Intel Corp.*, 157 F.3d 887, 892 (Fed. Cir. 1998)). See also, e.g., *Fujitsu Limited v. Tellabs Operations, Inc.*, 2011 U.S. Dist. LEXIS 112675 at *19-20 (N.D. Ill., Sep. 29, 2011) ("Finally, the court can rely on extrinsic evidence such as 'expert and inventor testimony, dictionaries, and learned treatises' in construing a patent's claims. Such extrinsic evidence 'can shed useful light on the relevant art.'") (emphasis added; quoting *Phillips* at 1317).

Extrinsic evidence is often presented in the form of expert testimony. See, e.g., *AIA Engineering Ltd. v. Magotteaux Int'l. S/A*, 657 F.3d 1264, 1273 (Fed. Cir. 2011). As the Federal Circuit recognized in *Phillips*:

> extrinsic evidence in the form of expert testimony can be useful to a court for a variety of purposes, such as to provide background on the technology . . . , to explain how an invention works, to ensure that the court's understanding of the technical aspects of the patent is consistent with that of a person of ordinary skill in the art, or to establish that a particular term in the patent or prior art has a particular meaning in the pertinent field.

Phillips, at 1318. As the Federal Circuit said in *Phillips*:

> [B]ecause extrinsic evidence [including inventor testimony] can help educate the court regarding the field of the invention and can help the court determine what a person of ordinary skill in the art would understand claim terms to mean, it is permissible for the district court in its sound discretion to admit and use such evidence.

Phillips, at 1319.

While such sources can be useful in order to better understand the technological background of a patent and how one skilled in the art would interpret claim terms, they are viewed as "as less reliable than the patent and its prosecution history." *Phillips*, 415 F.3d at 1318. Extrinsic evidence in general, and expert testimony in particular, may be used only to help the court come to the proper understanding of the claims; it may not be used to vary contradict the claim language." *Vitronics Corp.*, 90 F.3d at 1584.

V. DISCUSSION OF CLAIM TERMS AT ISSUE

As presented in OTI's proposed joint claim construction, and as supported by the Declarations of Dr. Alyssa Apsel and Nehemya Itay, an inventor of the '043 Patent, the claim terms at issue have the meanings described below.

A. Preamble: "A... card having contact and contactless modes of operation"

The preamble of claim 1, which recites a "card having contact and contactless modes of operation," is not a limitation of the claim. In the alternative, if it is a limitation, it means a device, which may be a standalone module or integrated with other hardware which may or may not be portable, that allows communication in contact and contactless modes of operation.

1. The Preamble is not *a Limitation of Claim 1*

The preamble does not limit the scope of claim 1, for at least two reasons: (a) the term "card" is an obvious typographical error that must be correctly read as a "device," and (b)

regardless of the typographical error, the word "card" in the preamble does not give life, meaning, and vitality to the rest of the claim.

a. The Term "Card" is an Obvious Typographical Error

Where an error is apparent on the face of the patent and is not contradicted by the prosecution history, a Court may read the claim as clearly intended by the inventors. *Hoffer v. Microsoft Corp.*, 405 F.3d 1326, 1331 (Fed. Cir. 2005); *Ultimax Cement Mfg. Corp. v. CTS Cement Mfg. Corp.*, 587 F.3d 1339, 1353 (Fed. Cir. 2009) (district court has authority to correct claim language when "(1) the correction is not subject to reasonable debate based on the consideration of the claim language and the specification and (2) the prosecution history does not suggest a different interpretation of the claims.") The proposed correction must be considered from the point of view of one skilled in the art. *CBT Flint Partners, LLC v. Return Path, Inc.*, 654 F.3d 1353, 1358 (Fed. Cir. 2011).

In this case, as is evident from the file history, the claims were originally filed with the word "device" in the preamble. (Application as Filed, p. 25, Yonay Dec., Ex. 2A). In connection with OTI's response to Office action, the word "device" was replaced by "card." However, the change is not marked as an amendment, and the remarks are silent as to the change. (September 22, 1999, Response to Office action, Yonay Dec., Ex. 2C). Unlike the omission of the word "for" (enclosed in brackets), or the insertion of the phrase "during both said contact and contactless modes" (underlined), the amendment does not indicate the change: the word "device" is not bracketed, nor the word "card" underlined. The change was clearly a typographical error.

As further support, the preambles of *all* of dependent claims 2-27 continue to recite "devices." ('043 Patent, Col. 13 line 59 – Col. 16 line 59). Had OTI intended to amend the

preamble, it would have done so for the dependent claims, as well. Nor does it make sense to limit claim 1 to a card, where the dependent claims broadly refer to a device – the dependent claims cannot broaden the scope of the independent claim. See, e.g., *AK Steel Corp. v. Sollac*, 344 F.3d 1234, 1242 (Fed. Cir. 2003) ("Under the doctrine of claim differentiation, dependent claims are presumed to be of narrower scope than the independent claims from which they depend.") (citations omitted).

The specification of the '043 Patent likewise counsels a broad reading of claim 1:

> ... whilst the invention has been described with particular reference to a data transaction device in the form of a card, *any other suitable device is contemplated within the framework of the invention as defined in the appended claims*. Likewise, such a device need not be a standalone module but may, if desired, be integrated with other hardware which may or may not be portable. ('043 Patent, col. 13, lines 30-34, emphasis added).

The prosecution history does not suggest a different interpretation: the amendment is clearly inadvertent. Compare *Novo Industries, L.P. v. Micro Molds Corp.*, 350 F.3d 1348 (Fed. Cir. 2003) (rejecting proposed correction when claim language from a dependent claim was included into the independent claim).

A person of ordinary skill in the art would know, based on the language of all the claims and specification as a whole, that claim 1 intends to cover a device, not a card. (Apsel Rpt. ¶¶39-46). This correction is not subject to reasonable debate. *Ultimax*, 587 F.3d at 1353 (correcting claim because one skilled in the art would know that a comma was missing in a chemical formula). There is no reasonable debate that the word "card" is an error, and the preamble should read "device."

b. The preamble does not limit the scope of claim 1

Regardless of whether the typographical error in claim 1 is correctly read as "device," the preamble does not limit the scope of claim 1. The word card is not "essential to understand[ing] limitations or terms in the claim body." *Catalina Marketing International v. CoolSavings.com, Inc.*, 289 F.3d 801, 810 (Fed. Cir. 2002). As Dr. Apsel explains (Apsel Rpt. ¶40), the claim body is structurally complete, and deleting the preamble phrase would not affect the structure of the claimed invention. *Id.* at 809; see also *Intirtool, Ltd. v. Texar Corp.*, 369 F.3d 1289, 1295 (Fed. Cir. 2004).

The phrase "data transaction card" (or "data transaction device") merely gives "a descriptive name to the set of limitations in the body of the claim that completely set forth the invention." *IMS Tech., Inc. v. Haas Automation, Inc.*, 206 F.3d 1422, 1434 (Fed. Cir. 2000) ("control apparatus" in the preamble does not limit a claim to control apparatuses that are separate from machine tools). The body of claim 1 does not use the word "card," nor does it provide any patentable structure over the prior art. In a similar case, the Federal Circuit found the preamble not to be limiting:

> Although the specification refers to terminals located at points of sale, and even once states that terminals may be placed in retail stores, *the specification, in its entirety, does not make the location of the terminals an additional structure for the claimed terminals*.

Catalina, 289 F.3d at 808 (preamble phrase "located at predesignated sites such as consumer stores" not limiting).

Similarly, although some embodiments of the '043 Patent have the form of a card, the specification expressly states that this is not a limiting feature of the invention. ('043 Patent,

Col. 13, lines 30-37: "any other suitable device is contemplated within the framework of the invention…")

The term "card" in the preamble of claim 1 does not give life, meaning, and vitality into claim 1, and therefore, it is not a limitation of the claim.

2. In the alternative, the preamble should be construed broadly

In the alternative, if the preamble is considered a limitation, it should be construed broadly. (Apsel Rpt. ¶¶45-46). More specifically, the term "card having contact and contactless modes of operation" should be interpreted to mean a device, which may be a standalone module or integrated with other hardware which may or may not be portable, that allows communication in contact and contactless modes of operation. (See Col. 13, lines 30-34). See also, Itay Dec. ¶¶19-21.

B. "a semiconductor device for operating in said contact and contactless modes"

The claim term "a semiconductor device for operating in said contact and contactless modes," should be construed according to its plain meaning.[2] Contact mode simply means a mode of operation in which [a] data is exchanged with the semiconductor device [b] via the contact field [c] using a contact data communications protocol. (Apsel Rpt. ¶¶51-55). Contactless mode means a mode of operation, [a] responsive to an electromagnetic field across the antenna coil, [b] in which data is exchanged with the semiconductor device [c] via an antenna interface [d] using a contactless data communications protocol. (Apsel Rpt. ¶¶56-61).

[2] There does not appear to be any real dispute as to the interpretation of "semiconductor device" as any device, such as a microprocessor, made of semiconductor material (Apsel Rpt. ¶48).

1. "contact mode"

The starting point for claim construction is the words of the claim. In this case, the plain and ordinary meaning of the words "contact mode" (taken in isolation) is a mode of operation in which data is exchanged over contacts. The context of the remainder of claim 1 (emphasis added) provides the following additional instructive language:

> a semiconductor device for operating in said *contact and contactless modes* in accordance with a *respective contact or contactless data communications protocol*…
>
> *contact field* including contacts fixedly connected to the semiconductor device during both said contact and contactless modes, and *allowing data transmission between the contacts and the semiconductor device in accordance with said contact data communications protocol*…

From these portions of the claim, one of ordinary skill would understand that in contact mode, the contact fields allow data transmission between the contacts, and that contact mode utilizes a contact data communications protocol. (Apsel Rpt. ¶51). Accordingly, the plain meaning of contact mode based on the claim is a mode of operation in which [a] data is exchanged with the semiconductor device [b] via the contact field [c] using a contact data communications protocol.

The specification is consistent with this understanding of contact mode. For example, the schematic diagram of Fig. 2 shows that in contact mode, data is exchanged over the line labeled as "CONTACT DATA." This line is not connected to the antenna interface, but rather, carries only contact data. (Apsel Rpt. ¶52). Likewise, the more detailed Fig. 3 shows an example of a microprocessor and antenna interface, in which the microprocessor 14 has an input/output port, IO_1, for exchanging contact data, connected to contact C7 in the contact field 11. (See '043 Patent, Col. 4, lines 37-39; Apsel Rpt. ¶53). This contact mode of operation is described throughout the specification, for example:

> In contact mode, data transmission between the contact C7 in the contact field 11 and the microprocessor 14 is effected using a data communications protocol conforming to ISO 7816. ('043 Patent, Col. 8, lines 40-43).
>
> In the case of contact mode, the microprocessor 14 knows that both incoming and outgoing data is to be channeled via the first data i/o port, IO_1 in accordance with a communications protocol conforming to ISO 7816. ('043 Patent, Col. 8, lines 58-61).

One of ordinary skill would understand contact mode to mean a mode of operation in which data is exchanged with the semiconductor device via the contact field using a contact data communications protocol. (Apsel Rpt. ¶54; see also, Itay Dec. ¶22).

2. "contactless mode"

In a similar fashion, the meaning of contactless mode is first ascertained by reading the words themselves: "contactless mode" suggests a mode of operation in which data is (at least partly) exchanged over a connection that does not involve contacts, i.e., a wireless connection.

The context of the remainder of claim 1 (emphasis added) provides the following additional instructive language:

> a semiconductor device for operating in said *contact and contactless modes* in accordance with a *respective contact or contactless data communications protocol*…
>
> an antenna coil for allowing *contactless data transmission between the antenna coil and the semiconductor device*…
>
> an antenna interface… being responsive to an *electromagnetic field across the coil for effecting said contactless data transmission.*

From these portions of the claim, one of ordinary skill would understand that contactless mode is a mode [a] responsive to an electromagnetic field across the antenna coil, [b] in which data is exchanged with the semiconductor device [c] via an antenna interface [d] using a contactless data communications protocol. (Apsel Rpt. ¶56).

Again, the specification supports this interpretation. Referring back to Fig. 2, contactless mode is a mode of operation in which data is exchanged wirelessly via the antenna interface over radio frequency (RF), and is exchanged between the antenna interface and the microprocessor (semiconductor device) over a "SERIAL 'CONTACTLESS' DATA" line. (Apsel Rpt. ¶57). In referring to data transmission of contactless data, the '043 Patent states:

> Data itself is transmitted serially via a fifth line 17 between the antenna interface 16 and the microprocessor 14. ('043 Patent, Col. 3, line 66 – Col. 4, line 4, emphasis added)

In the embodiment of Fig. 3, microprocessor 14 has an input/output port IO_2, for exchanging contactless data, and connected to contact C4, in the contact field 11. ('043 Patent, Col. 4, lines 37-39; Apsel Rpt. ¶58). The communication of contactless data is performed using a contactless communication data protocol. (Apsel Rpt. ¶59). This is described throughout in the specification, for example:

> In contactless mode, data transmission is effected between the microprocessor 14 and the data i/o connection terminal 26 of the antenna interface 16 using a contactless protocol . . . ('043 Patent, Col. 8, lines 43-46).
>
> In the case of contactless mode, the microprocessor 14 knows that both incoming and outgoing data is to be channeled via the second data i/o port, IO.sub.2 in accordance with a contactless protocol stored within the microprocessor 14. ('043 Patent, Col. 8, lines 61-65).
>
> . . . [T]he mode detector 52 is responsive to the presence of an electromagnetic field across the coil antenna 15 for enabling "contactless" mode. ('043 Patent, col. 11, line 66 to col. 12, line 1).

One of ordinary skill would understand contactless mode to mean a mode of operation, responsive to an electromagnetic field across the antenna coil, in which data is exchanged with the semiconductor device via an antenna interface using a contactless data communications protocol. (Apsel Rpt. ¶¶60-61; see also, Itay Dec. ¶23).

C. "contact field"

The term "contact field" has its plain and ordinary meaning and requires no interpretation. Starting with the plain meaning of the words contact field, the term simply means a field, or set, of contacts. Indeed, claim 1 expressly provides the "contact field including contacts." (Apsel Rpt. ¶62).

In the alternative, if interpretation is required, a contact field as used in claim 1 means a set of galvanic connections with a semiconductor device. (Apsel Rpt. ¶62). A galvanic connection simply means one that allows a continuous path for current to flow, for example, one made of a metallic or other conductive material. (Apsel Rpt. ¶62).

The specification uses 'contact field' with this general meaning in mind. (Apsel Rpt. ¶63). In the background section of the specification, a contact field is described in the prior art as having a plurality of contacts:

> there is provided a so-called "contact field" having a plurality of contacts, each of which is connected to the microcomputer by means of a respective electrical connection ('043 Patent, Col. 1, lines 37-40).

This electrical connection simply means a set of contacts that allow galvanic or conductive connections. (Apsel Rpt. ¶63). Similarly, the specification describes the embodiment of Figure 3, as illustrating a "system 10 comprising the contact field 11 having contacts" ('043 Patent, Col. 4, lines 34-35). The contacts in the contact field are associated with individual lines, each having a specific functionality (e.g., CONTACT DATA, VDD, RST, CLK, and GND). ('043 Patent Fig. 2). The contacts are not described or depicted in the figures or the specification as requiring any particular structure or configuration in order to provide their conductive functionality, nor does the file history limit this generality. (Apsel Rpt. ¶¶64-65; see also, Itay Dec. ¶¶24-25).

D. "allowing data transmission between the contacts and the semiconductor device in accordance with said contact data communications protocol only during said contact mode"

The term "allowing data transmission between the contacts and the semiconductor device in accordance with said contact data communications protocol only during said contact mode" means allowing data transmission between the contacts and the semiconductor device via a contact-data input/output port used only for contact mode, in which data is exchanged in accordance with a contact data communications protocol (and not for data exchanged in contactless mode). (Apsel Rpt. ¶¶67-87). One of ordinary skill would also understand that the contact data communications protocol is different from the contactless data communications protocol. (Apsel Rpt. ¶88).

1. The Plain Meaning of the Claim Language

The context of this term in the claim is worth noting: "a *contact field*… allowing data transmission between the contacts and the semiconductor device…" That is, this claim element refers to a structural limitation of the *contact field*, and its role in the contact mode of operation. By stating that the contact field "allow[s] data transmission between the contacts and the semiconductor device in accordance with said contact data communications protocol only during said contact mode" the claim means that at least one of the contacts in the contact field is only used for contact mode, or only allows exchange of data transmitted in contact data communications protocol. (Apsel Rpt. ¶71).

2. Specification and Prior Art

The specification and prior art further support this interpretation. The prior art configuration used a common data port to the microprocessor for exchanging both contact and contactless data. That is, it allowed data transmission between the contacts and the

semiconductor device via the *same* data input/output port for contact mode *or* contactless mode (whichever was selected at the time). (Apsel Rpt. ¶73).

The claim term stands in contrast to the prior art, insofar as the contact field allows data transmission via a contact-data input/output port used *only* for contact mode, and not for data exchanged in contactless mode. (Apsel Rpt. ¶73). The specification describes contact mode communication through a dedicated input/output port, IO_1, which is electrically coupled or connected to contact C7 in Fig. 3:

> . . . i/o ports IO1 and IO2 [are] connected to the contacts C7 and C4, respectively, in the contact field 11" ('043 Patent, Col. 4, lines 37-39).

(Apsel Rpt. ¶74).

Conversely, contactless data is exchanged over a separate dedicated IO port, IO_2, which is electrically coupled to contact C4 in Fig. 3:

> A data i/o terminal 26 allows for connection of the antenna interface 16, via the line 17, to the second i/o port IO2 of the microprocessor 14 (constituting a contactless i/o port thereof) in parallel with the contact C4 of the contact field 11" ('043 Patent, Col. 4, lines 61-64).

(Apsel Rpt. ¶75).

Likewise, from the point of view of the microprocessor, IO_1 is a dedicated line only for exchanging data in a contact communications protocol, and IO_2 is a dedicated line only for exchanging data in a contactless communications protocol:

> In the case of contact mode, the microprocessor 14 knows that both incoming and outgoing data is to be channeled via the first data i/o port, IO1 in accordance with a communications protocol conforming to ISO 7816. In the case of contactless mode, the microprocessor 14 knows that both incoming and outgoing data is to be channeled via the second data i/o port, IO2 in accordance with a contactless protocol stored within the microprocessor 14 ('043 Patent, Col. 8, lines 40-47).

(Apsel Rpt. ¶76).

This is all that the specification requires of the structure of the invention in order to effectuate the claim language "allowing data transmission between the contacts and the semiconductor device in accordance with said contact data communications protocol only during said contact mode."

3. File History

The file history further supports this interpretation. As discussed above, in the June 25, 1999 Office action, the Examiner rejected claim 1 as being anticipated by Kreft '812. (June 25, 1999 Office action, pp. 2-4, Yonay Dec. Ex. 2A). The Examiner described Kreft '812 as disclosing "a chip card comprising a chip 1, electrical contacts 2, and coil windings 5 for contactless communication" (June 25, 1999 Office action, p. 2, Yonay Dec. Ex. 2A).

In the September 22, 1999 response to the Office action (Yonay Dec. Ex. 2C), claim 1 was amended as follows:

> a contact field including contacts fixedly connected to the semiconductor device [for] during both said contact and contactless modes, and allowing data transmission between the contacts and the semiconductor device in accordance with said contact data communications protocol only during said contact mode,

As explained in the remarks submitted to the USPTO, claim 1 was amended to:

> emphasize that the contacts are fixedly connected to the semiconductor device during both modes, contact or contactless, of data transmission. However, the contacts perform on a selective basis, that is, only in the contact mode. (September 22, 1999 Response, p. 2, Yonay Dec. Ex. 2C, emphasis in original)

Furthermore, OTI showed that the Kreft '812 prior art required a switching element, while in claim 1 "no switching element is required for selecting whether contact or contactless modes of operation are required." (September 22, 1999 Response, p. 2, Yonay Dec. Ex. 2C,

emphasis in original). This is the principal distinction over Kreft '812, as discussed at length in the response to Office action (see also, September 22, 1999 Response, pp. 3-4, Yonay Dec. Ex. 2C). This distinction is related to the claim language at issue "allowing data transmission between the contacts and the semiconductor device in accordance with said contact data communications protocol only during said contact mode," because the separate dedicated data i/o ports is what allows elimination of the switching element. (Apsel Rpt. ¶80).

Although the patent cited by the Examiner (Kreft '812) is not identical to the prior art discussed in the background of the invention (Kreft '495), the two both utilize switching. (Apsel Rpt. ¶81). Kreft '812 discusses a switching element to allow either contact or contactless communication:

> A chip card capable of selectively transmitting and receiving data via contact members or in a contactless manner (i.e., transmission coils). . . In particular, based on the function as a switching element, the electronics can be switched on and off by the card user for purposes of the remote transmission. . . (Abstract)
>
> . . . [C]ontact block 10, 8 serves as a switch upon a capacitive charge change of the surface of the contact block. Thus, the contact block 10, 8 fulfills the additional function of a switch. For example, contact-free functions of the card can be switched on and off by the owner of the card with the aid of the switch. (Kreft '812, Col. 5, lines. 22-28).
>
> . . . an output signal of the sensor switches the first integrated circuit to a contact of contactless coupling. (Kreft '812, Col. 7, lines 58-60).

The '043 Patent differs from the prior art in that it uses no switching element, and instead, has dedicated i/o lines. (Apsel Rpt. ¶82). The remarks and amendment during prosecution are therefore consistent with allowing data transmission between the contacts and the semiconductor device via a contact-data input/output port used only for contact mode, in which

data is exchanged in accordance with a contact data communications protocol (and not for data exchanged in contactless mode). (Apsel Rpt. ¶82).

4. T-Mobile's Interpretation is Unduly Limiting and Unsupported

T-Mobile proposes to interpret this claim element to mean that "data transmission is *not permitted* between the contacts and the semiconductor device during the contactless mode of operation of the card." However, this interpretation would not have helped OTI overcome the prior art, since Kreft '812 did not allow data transmission between the contacts and the semiconductor device during the contactless mode of operation of the card: the switching element was set to prevent such communication. (Apsel Rpt. ¶83). Therefore, the claim amendment as interpreted by T-Mobile would not have been necessary or even helpful in overcoming the prior art cited by the Examiner. (Apsel Rpt. ¶84).

T-Mobile's proposed construction is also unduly limiting in that it implies that claim 1 prohibits simultaneous operation in contact and contactless modes ("data transmission is not permitted"). The Kreft '812 prior art described exclusive (non-simultaneous) modes of operation (e.g., Kreft '812 Col. 5, lines 28-30: "where the contact-free remote access is to be excluded"). Moreover, the '043 Patent is not limited to exclusive (non-simultaneous) use of the two dedicated data lines:

> It will be clear that the data card according to the invention differs over hitherto proposed data cards also in that, in the invention, data may be present on the contact field even when data is present on the coil antenna. In such a situation the microprocessor may be programmed to relate to the data on only one of the data lines or on both data lines simultaneously according to a predetermined protocol. ('043 Patent, Col. 13, lines 22-29)

(Apsel Rpt. ¶85).

In this regard, the possibility of simultaneous operation of contact and contactless mode is contemplated in the '043 Patent claims. (Apsel Rpt. ¶86). First, claim 1 describes a semiconductor device for operating in contact and contactless modes (not a device that operates in contact or contactless modes). More importantly, dependent claim 25 expressly claims that "data may be present on the contact and contactless i/o ports simultaneously, and the semiconductor device is programmed to relate to the data. . . on *both data lines simultaneously* according to a predetermined protocol." ('043 Patent, Col. 16, lines 46-51, emphasis added). If claim 1 was interpreted to mean that data transmission over the contacts was prevented in contactless mode, claim 25 (which depends from claim 1) would be contradicted. Independent claim 1 therefore includes the possibility of both simultaneous and non-simultaneous data transmission in contact and contactless modes. See also, Itay Dec. ¶¶26-28.

5. The contact data communications protocol is different *than the contactless data protocol*

The contact data communications protocol and the contactless data communications protocols are different. First, the claim uses different terminology for the protocols. Second, the claim language "a semiconductor device for operating in said contact and contactless modes in accordance with a respective contact or contactless data communications protocol…" makes clear that the protocols used in contact mode and contactless modes are different. Third, the specification corroborates this: "[s]uch an arrangement thus enables *separate communications protocols* to be employed for the bi-directional transmission of data in 'contact' and 'contactless' mode." (Col. 4, lines 25-27).

If the contact and contactless protocols were the same, there would be less need for the invention; the prior art (which used a switching mechanism) would have been suitable (apart from not supporting simultaneous operation). (Apsel Rpt. ¶88). In contrast, an important

advantage of the invention over the prior art is the flexibility derived from the fact that the handling of contactless protocol can be performed by the microprocessor under software control so hardware changes may not be required for changes in the contactless protocol. (Itay Dec. ¶12).

One of ordinary skill reading the claims in view of the specification would certainly understand contact data communications protocol to be different from the contactless data communications protocol. (Apsel Rpt. ¶88; see also, Itay Dec. ¶29).

E. "at least some"

Claim 1 states that the antenna interface is "coupled… to at least some of the contacts in the contact field." In the context of claim 1, and based on ordinary usage, this means the antenna interface is coupled to more than one of the contacts in the contact field; i.e., a coupling to only one contact should not be considered within the ambit of the claim. (Apsel Rpt. ¶¶88-92).

The claim term "at least some" is not a term having specialized meaning to those of ordinary skill. Accordingly, it is appropriate to interpret this terms based on common English usage, in which resort to dictionaries is permitted. *Phillips*, at 1314. See also, *Inverness*, 309 F.3d at 1382 (where disputed term had no specialized meaning, standard dictionaries of the English language were the proper source for determining ordinary meaning).

In common usage, the term "some" as applied to a group of individual items connotes more than one. Dictionaries contemporaneous with the invention support this meaning: although the word "some" generally means an unspecified or indeterminate number, at least one definition (Roget's II) indicates that some means "more than two or three but less than many." (Yonay Dec., Ex. 5).

In the context of the patent claim, as a technical matter, a connection to one contact would not meaningfully enable operation of the invention. Specifically, one of the functions of the coupling between the antenna interface and the contact field is to enable the RF electromagnetic field signal, induced across the antenna, to power the microprocessor, in addition to powering the antenna interface. (Apsel Rpt. ¶92). In order to accomplish this function, the antenna interface must be coupled to at least two contacts in the contact field: Vdd and ground (GND). (Apsel Rpt. ¶93).

T-Mobile's proposed interpretation would include a single contact within the scope of "at least some" of the contacts. However, if the antenna interface were coupled to only one of the contacts (e.g., only to ground), the antenna interface could not deliver power from the RF signal to the microprocessor. (Apsel Rpt. ¶93).

Accordingly, based on the plain language meaning of the word "some" and its usage in the context of the claim and the specification, one of ordinary skill would understand the term "at least some of the contacts" to mean "more than one of the contacts." See also, Itay Dec. ¶30.

VI. CONCLUSION

A straightforward application of the basic principles of claim construction supports the claim constructions proposed by OTI. There is no reason to construe the terms narrowly as proposed by T-Mobile.

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CERTIFICATE OF SERVICE

I certify that on December 21, 2012, I served the foregoing ON TRACK INNOVATION'S OPENING BRIEF ON CLAIM CONSTRUCTION, as well as the EXPERT REPORT OF DR. ALYSSA APSEL ON THE CLAIM CONSTRUCTION OF U.S. PATENT NO. 6,045,043; DECLARATION OF NEHEMYA ITAY ON THE CLAIM CONSTRUCTION OF U.S. PATENT NO. 6,045,043; and DECLARATION OF GUY YONAY ON THE CLAIM CONSTRUCTION OF U.S. PATENT NO. 6,045,043 on Counsel for Defendant-Counterclaim Plaintiff T-Mobile USA, Inc. by sending a copy via email (by consent) to counsel of record addressed as follows:

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